

placement of the application into condition for allowance.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Robert W. Becker".

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for Applicants

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VERSION WITH MARKINGS TO SHOW CHANGES MADE:

IN THE SPECIFICATION:

On page 2, lines 5 - 16, please replace the existing paragraph with the following paragraph:

--JP-A-61-133633 discloses an apparatus for the treatment of semiconductor wafers using three identical treatment tanks that are supplied with treatment fluid via a common supply unit. The treatment tanks are sequentially used for the treatment of the wafers in such a way that at any point in time only a single tank is used for the treatment of wafers. The remaining tanks are held in readiness in order after conclusion of a specific number of treatment cycles in the already used tank to be used as the treatment tank. This apparatus requires space for three treatment tanks, although at any given point in time only one of the tanks is used for the treatment of wafers. This high requirement for space leads to high costs for the apparatus, which are generally operated in expensive clean [streams] or super-clean rooms.--

On page 3, lines 14 - 21, please replace the existing paragraph with the following paragraph:

--Proceeding from the aforementioned apparatus, it is an object of the present invention to provide an apparatus and a method for treating substrates, which make possible an economical treatment of the substrates. Furthermore, the throughput of the apparatus is to be increased without a significant increased requirement for space for the apparatus, since these apparatus are generally operated in clean [streams] or super-clean rooms that are very cost intensive with regard to their preparation and operation.--

On page 4, lines 1 through page 5, line 4, please replace the existing paragraph with the following paragraph:

--The object of the present invention is inventively realized by a method for treating substrates in at least one of two tanks, each of which can be filled with at least two treatment

fluids, by providing the following method steps: a) Preparing a first treatment fluid in a treatment fluid processing unit that is common to, or shared by, both of the tanks, with the capacity of the processing unit being designed for one treatment tank, b) Charging the tank with substrates, c) Introducing the first treatment fluid into the tank for a predetermined period of time, d) Introducing the at least second treatment fluid into the tank and e) Removing the substrates from the tank, whereby the method sequence or steps are controlled in parallel, and in a time staggered manner, in the respective tanks in such a way that a period of time sufficient for the preparation of the first treatment fluid is provided between the end of the step c) in one of the tanks and the start of the step c) in the other tank. By using two treatment tanks, and due to the time staggered control of the method steps in the tanks, it is possible to double the throughput capacity of a conventional single tank processor, i.e. Single Tank Tool. Due to the time staggered control of the method steps in the respective tanks, it is possible to jointly use the apparatus and elements that are connected with the tanks without the capacity thereof having to be designed for a plurality of tanks. As a result, no two complete Single Tank Tools are required, so that the floor space can be significantly reduced relative to the use of two conventional Single Tank Tools. This is particularly advantageous with regard to the fact that the apparatus are generally disposed in clean [streams] or super-clean rooms, the production and maintenance of which is very cost intensive.--

On page 5, lines 6 - 8, please replace the existing paragraph with the following paragraph:

--The first treatment fluid is preferably [withdrawn] drained prior to the introduction of the second treatment, or is displaced out of the tank by the introduction of the second treatment fluid.-

On page , lines 9 - 16, please replace the existing paragraph with the following:

--Each tank preferably has a rapid discharge valve and/or an overflow. To prevent a separation or a static alteration of the treatment fluid in the treatment fluid supply unit, the latter has a fluid circuit in which the treatment fluid can be constantly kept moving. For a reprocessing

of the chemicals used during the treatment, pursuant to one specific embodiment of the present invention the apparatus has a device for the return of treatment fluid from the tanks to the first treatment fluid supply unit, in which a reprocessing unit is provided.--

On page 9, lines 11-20, please replace the existing paragraph with the following paragraph:
-- Provided within the treatment station 2 is an introduction/delivery storage unit 8 that serves for accommodating a plurality of wafer cassettes 10, which are introduced into or removed from the introduction/delivery storage unit by a non-illustrated charging and removal or lock mechanism. Disposed next to the introduction/delivery storage unit 8 is a first device for concentrating the wafers, a so-called pusher 12, in which the wafers are stacked together from two wafer cassettes 10 in order, for a subsequent treatment, to form a compact set of wafers. If, for example, 26 wafers are contained in a wafer cassette 10, the stacked set in the pusher contains 52 wafers.--

On page 10, after lines 9 through 17, please replace the existing paragraph with the following paragraph:

-- Furthermore disposed in the treatment station 2 is a treatment basin or tank 16, designated STT1, as well as a treatment basin or tank 18, designated STT2. To transport the wafer sets between the pushers 12 and 14 and the treatment tanks 16 and 18, a transport mechanism in the form of a movable hood 20 is provided. The treatment tanks 16 and 18 are disposed in line with the pushers 12 and 14. Due to the in-line arrangement of the pushers 12,14 and the treatment tanks 16,18, it is sufficient for the hood to be movable in only two directions of movement, i.e. horizontally and vertically.--

On page 11, line 18, through page 12, line 2, please replace the existing paragraph with the following paragraph:

--The construction and function of the chemical supply unit 22 will now be explained in greater detail with the aid of Fig. 2. The chemical supply unit 22 contains a heating device 24, a mixing device 26, a pump 28, filters 29,30, a concentration device 32 and a [tempering device]

temperature control unit 34. The respective elements are interconnected by lines in the manner shown in Fig. 2 in order to form a closed circuit.—

On page 12, lines 17 through 19, please replace the existing paragraph with the following paragraph:

--Furthermore, the treatment tank 16 has an overflow 46 that communicates with an outlet in order to [withdraw] discharge treatment fluid that [flows off] overflows from the tank.—

On page 13, line 5 through 19, please replace the existing paragraph with the following paragraph:

--Within the chemical supply unit, in particular the heating device 24 and the mixing device 26 form a chemical processing unit in which the chemicals are prepared for a treatment of wafers in the treatment tanks 16,18. The capacity of the chemical supply unit, and in particular of the chemical processing unit, is designed for a single treatment tank 16,18. After the chemicals have been processed they are conveyed via the pump 28 and the filters 29,30 to the treatment tank 16,18 in which it is held for a predetermined period of time in order to carry out a treatment of the wafer contained therein. The chemicals from the treatment tanks 16,18 are subsequently conveyed back to the chemical supply unit 22. Here the chemicals are concentrated within the concentration device 32 and are conveyed further to the [tempering device] temperature control unit 34, in which [they are tempered] their temperature is controlled. From there the chemicals go to the [feeding] heating device 24 in which they are heated in a suitable manner to the treatment temperature.—

On page 14, lines 8 through 12, please replace the existing paragraph with the following paragraph:

--Although it was previously described in conjunction with Fig. 2 that the entire treatment fluid was returned to the chemical supply unit after a treatment in the tanks 16,18, it is also possible for the treatment fluid to be returned only partially or not at all and to be [withdrawn]

discharged either via the overflow 46,50 or via the drain 44,48.—

On page 14, line 14 through page 15, line 4, please replace the existing paragraph with the following paragraph:

--The chemical supply unit 5 for diluted hydrofluoric acid (DHF) will now be described with the aid of Fig. 3. The unit 5 contains a mixing device 52, a pump 54, filters 55,56,57, a [tempering device] temperature control unit 58, and a concentration device 60, which are connected to one another via respective lines in order to form a closed circuit. The circuit is connected via suitable lines 61,62 with the inlets 37,39 of the treatment tanks 16,18. The capacity of the chemical supply unit 5 is designed for one treatment tank 16,18 and can always supply only one tank with DHF. The mixing device 52 communicates with containers for chemicals, via which containers the chemicals can be introduced into the circuit. The chemicals in the circuit are in constant movement and, to the extent that they are not conveyed via the lines 61,62 to the tank 16,18, flow in the closed circuit.—

On page 16, line 10 through page 17, line 7, please replace the existing paragraph with the following paragraph:

The treatment tank 18 (STT2) is first loaded or charged with wafers, while at the same time the SC1 in the chemical supply unit 22 is processed. After the charging, for a specific period of time a treatment of the wafers with SC1 is carried out in the treatment tank 18. After the treatment, the supply of SC1 into the treatment tank 18 is stopped, and at the same time new SC1 is processed in the chemical supply unit 22 for the next treatment. The SC1 still located in the treatment tank 18 is displaced out of the tank for the rinsing of the wafer by introducing Di water and is caused to overflow, or the SC1 is discharged via the [rapid] quick dump drain 48 and Di water is subsequently introduced into the treatment tank 18. For a certain period of time DHF is subsequently introduced into the treatment tank 18 and is held there or is continuously conveyed therethrough. After the DHF treatment of the wafers, the DHF is displaced from the tank by

introducing deionized water and is caused to overflow, and the wafers are rinsed with deionized water. The wafers are subsequently removed from the deionized water and are dried pursuant to the Marangoni process. The treatment tank 18 is now unloaded, and after a brief interval, which is necessary in order to transport the cleaned wafers away and to obtain new substrates that are to be cleaned, the tank is recharged.--